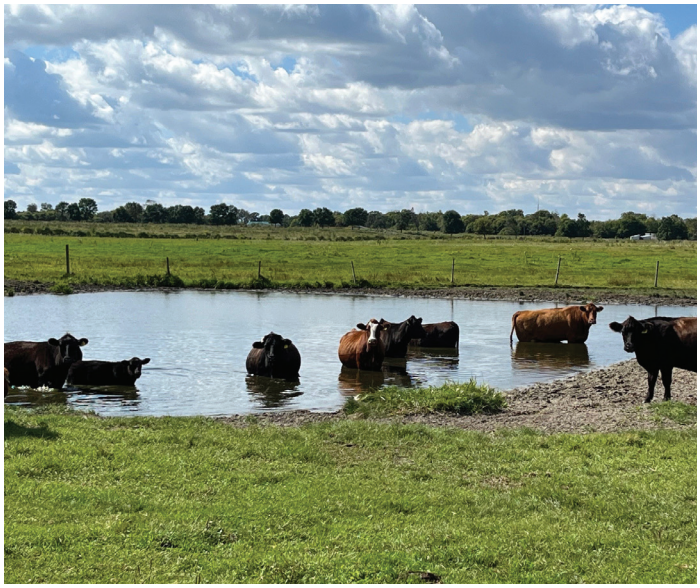
MANITOBA AGRICULTURE / MAY 2025

Beef and Forage Technical Bulletin 17th Edition

Manitoba 2024 Pasture Water and Feed Test Results

In 2024, Manitoba Agriculture conducted a pasture water survey with producers across the province to determine the water quality on pasture. The water was sampled from late August to mid-September. The water tested was from dugouts with direct livestock access, dugouts fenced with the water pumped out, and from wells. A total of 39 samples were tested by ALS Labs in Winnipeg. Please watch for the next edition of this bulletin to see the pasture test results.



Water quality is affected by full cattle access.

Overall, the fenced dugouts had the best quality water, with the well water having the lowest quality. Surprisingly, even the dugouts that allowed direct cattle access had better quality than that of the wells. The fact most dugouts are recharged with freshwater either as snow or rain may explain their higher quality. Well water is often believed to be of better quality, but this wasn't the case in our pasture water survey. The location, size, soil type, cattle access and vegetation are all factors affecting the water quality of dugouts.

Water is the main constituent of an animal's body making up 50 to 80 per cent of the liveweight depending on age and fatness. Water intake is affected by environmental temperature, stage of production and moisture in the feed. A good water supply in terms of both quantity and quality is important to livestock producers because total water intake is positively related to feed intake. Good quality water will benefit cattle performance through higher feed consumption.

Results

Although E-coli and coliforms were not tested in 2024, past work has shown that their levels are higher in direct access dugouts vs. those fenced off.

Alternative watering systems include solar, wind and pipelines

E.Coli can still be found in the troughs indicating alternative watering systems (fenced dugouts) won't eliminate this problem, so periodic chlorination of the trough may be required.

The maximum livestock water quality standard for **sulphates** is 1,000 mg/L. Water above 1,000 is considered poor quality, can cause diarrhea and will contribute to copper deficiencies. Sulphates more than 150 mg/L can have a noticeable taste while levels above 500 mg/L can have a laxative effect. Levels of sulphates above 500 can also tie up copper leading to deficiencies in beef cattle. Sulphates were lowest in the fenced dugouts and highest in the wells on average. One dugout and four wells were above 500 mg/L, with three wells above 1,000.

Total dissolved solids (TDS) below 1,000 is excellent, under 3,000 mg/L is suitable for all classes of cattle, between 3,001 and 5,000 may affect performance and health of calves and between 5,001 - 7,000 is considered poor quality as it can cause diarrhea in lactating cows. All the water samples were below 3,000, except for one well.

High levels of **ammonia-nitrogen, nitrate-nitrogen, and soluble phosphorus** usually indicate contamination of water by domestic or farm wastes, or agricultural fertilizers. This can stimulate the growth of aquatic plants and algae that need these nutrients. Nitrate and nitrite nitrogen shouldn't exceed 100 mg/L. All the water samples were well below this level. The fenced off dugouts had the lowest nitrogen levels and the wells had the lowest phosphorous levels.

Manitoba

By itself, **sodium** poses little risk to livestock. Over 800 mg/L can cause diarrhea in dairy cows. Only one water source was above 800 mg/L. Sodium chloride (salt) has additive effects with sulphates and should be evaluated together.

High **conductivity** is related to TDS values and can indicate large amounts of salt which render water unsuitable for some livestock uses. High chloride levels indicate salty water which cattle may refuse to drink. All the water samples were low in chloride, except one.

Hardness (as CaCO3)

As the hardness level increases, scaling on pipes and fixtures can occur. Water below 100 is considered soft and water above 101 is hard, but is acceptable for cattle. All the water samples were hard except one.

pH measures how acidic (less than seven) or basic (greater than seven) the water is, with seven being neutral. A pH less than 6.5 or greater than 9.0 is regarded as being poor water for cattle.

Metals

Iron above 0.3 mg/L is acceptable for cattle, but tastes bad. Forty-six per cent of the samples were below this level. Maximum molybdenum shouldn't be above 0.05 mg/L. None of the water samples were above this threshold. One mg/L is the maximum copper level for cattle. All samples were lower.

Summary

The overall water quality was acceptable for cattle in most of the samples tested. Above average rainfall in 2024 which kept dugout levels higher was likely a factor in better water quality in the dugouts that allow cattle access. Where water sources are high in sulphate (which ties up copper), producers need to ensure micro-mineral supplementation is adequate. This means using minerals with higher levels of copper and even chelated forms which are better absorbed by the livestock.

Water quality is negatively impacted if cattle have full access to a dugout. By excluding livestock from the water source, quality can be improved. However, if dugouts are designed properly, have a hard bottom (gravel) and vegetation to act as a buffer, water quality can be suitable for cattle. Fenced dugouts had the best water quality.

The pasture water was sampled late August-mid Sept.

There were 39 water samples surveyed

Sample Description	Conductivity uS/cm	Ph	Chloride mg/L	Nitrate + N mg/L	Sulfate mg/L	TDS mg/L (ppm)	Hard ness mg/L	P mg/L	Sodium mg/L	Copper mg/L	Molybdenum mg/L	Iron mg/L
Direct access dugouts (17 samples)												
Average	922.9	8.2	58.1	.09	164.5	599.5	375.2	**.65**	**55.2**	**.002**	**.003**	.78
Range	198-2930	7.7-9.4	1.38-651	.02-.45	.3-1720	129-1900	97.6-1710	.05-6.3	2.1-400	.0005-.008	.0001-.025	.09-4.4
Fenced dugouts (4 samples)												
Average	576	8.1	7.8	.02	9.5	374.3	274.8	1.47	10.8	.002	.001	.87
Range	431-806	7.1-8.6	2.2-15.3	.02	.3-30.5	280-524	216-325	.1-4.1	2.7-32.6	.0005-.004	.0001-.002	.3-2
Wells (18 samples)												
Average	1524.1	8	118.1	1.34	345.6	990.3	497.9	.19	166.1	.006	.004	2.09
Av. 1 high well removed	1235.5	8.1	83.4	1.36	226.5	802.7	448.4	.13	108.2	.006	.004	.96
Full Range	659-6430	7.3-8.6	1-708	.02-20.7	15.6-2370	428-4180	156-1340	.05-1.1	2.7-1150	.0005-.04	.0002-.0097	.01-21.3

DID YOU KNOW?

On Feb. 20, 2020, amendments were made to Canada's Health of Animals Regulations; including updates to Part XII: Transport of Animals. Under the amended regulations, every commercial carrier, or any person who transports animals in the course of business/and or for financial benefit, is required to keep records related to the movement of those animals.

There are two required records under the regulation, depending on the transportation circumstance:

Transfer of Care Record (TOC)

A TOC is required when animals are transported to an abattoir, assembly yard, or an auction mart. A TOC is not required when hauling cattle to a community pasture.

The individual transporting the animals is responsible for writing the TOC document. There is no special form or format that needs to be followed. It must be readable, include the required information, and easily accessible if requested by an inspector.

Information Required:

- condition of the animals upon arrival
- date, time and place when the animals were last fed, watered, and rested
- date and time the animals arrived at the abattoir, assembly yard, or auction mart

The purpose of the TOC is to ensure continuity of care. Upon arrival at the abbatoir, assembly yard, or auction mart, the transporter provides the TOC as written notice that care of the animal(s) in his/her possession has been transferred to the receiver. The receiver must acknowledge this transfer of responsibility. It is recommended (but not required) that both parties keep a copy of the TOC for their files.

Animal Transport Record (ATR)

An ATR is required when animals are transported in the course of business or financial benefit. An ATR is filled out at every step of the transport process (upon loading, during a feed/water/rest period, and when the animals arrive at their destination).

Animal Transport Records are not needed for routine animal husbandry/management movements, such as taking livestock to summer pastures, or when no financial transaction or sale of the animals takes place.

The individual transporting the animals is responsible for writing the ATR document. There is no special form or format that needs to be followed. Just ensure it is readable, includes the required information, and is easily accessible if requested by an inspector.

Information Required:

- name and address of the shipper, consignee, and the driver of the animal transport vehicle
- date and time when, and the place where, the animals are loaded
- the number, description and weight (actual or estimated) of the animals
- date, time, and place of arrival of the animals at the destination
- date and time when the animals were last fed, watered, and rested (FWR) prior to loading; update this information if animals are FWR during the journey
- Truck specific information:
    - identifying number of the vehicle (e.g. licence plate, registration number)
    - floor area (square metres or feet) available to the animals
    - date and time when, and the place where the conveyance was last cleaned and disinfected

The purpose of the ATR is to document and protect the welfare of animals in transport. It ensures that information about the animal's journey is available and can be shared with anyone involved in the humane transport (e.g., producers, transporters, dispatch, assembly personnel, receivers, buyers). The ATR moves with the load of animals as they are being transported. Unlike the TOC, the ATR does not need to be accepted/acknowledged by receivers. It must be kept on file by the transporter for two years.

Documents : CFIA Transport of Animals Requirements

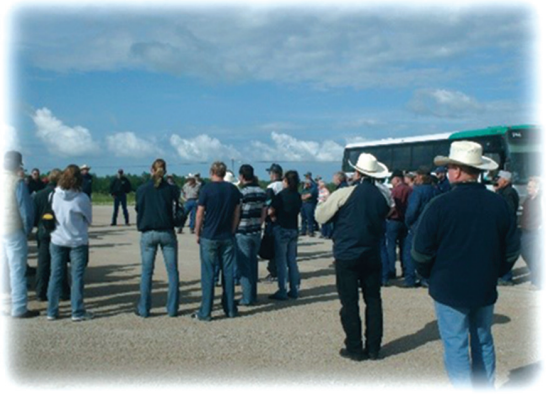
	Transfer of Care Document (TOC)	Animal Transport Records (ATR)
WHO?	Anyone transporting animals to an abattoir, assembly yard, or an auction market.	Commercial transporters, or those transporting animals for business or for financial benefit.
WHEN?	When the animals are left at an abattoir, assembly yard, or auction market.	When loading the animals + when the animals are provided FWR en route + when the animals arrive at destination.
WHAT?	❶ Condition of the animals on arrival ❷ Date, time and place of last time they received feed, water and rest (FWR) ❸ Date and time of arrival	See the list of information to record in Part XII of the *Health of Animals Regulations*, section 154. Some of the information is the same as on a TOC and a provincial livestock manifest. Information already available does not need to be repeated.
HOW?	Transporter writes the TOC and gives it to the abattoir, auction market or assembly yard. No special format (can be electronic). Recommendation: both parties keep a copy in their files.	Transporter completes record for each load of animals, keeps original (or a copy) onboard with the load, and keeps in files for at least 2 years. There is no special format (can be electronic).
WHY?	To ensure there is no gap in the responsibility for the animals. It is the transporters and receivers proof of what condition the animals are in, and when they arrived.	To ensure information about the animals' journey is available, and can be shared when needed, with everyone involved in humane transport.

Credit: Beef Cattle Research Council

Save the Date!

SUMMER PASTURE TOUR

Manitoba Agriculture invites you to join us for a pasture tour in northwest Manitoba featuring multiple aspects of summer pasture and forage management, including solar watering, cover cropping, alfalfa weevil monitoring for hay production and more! Watch for more information in the next Cattle Country Newsletter.



Date: **Monday, June 23, 2025**

Time: **9:00 AM - 6:00 PM**

Place: **Ste. Rose Recreation Centre**
555 Maillard Street, Ste. Rose, MB

Registration:

$40 ***(includes bus transport, lunch, and supper)*** *Payable to the Intermountain Watershed District*
Pre-Registration REQUIRED on or before Friday, June 20, 2025
Please call 1-844-769-6224 to register

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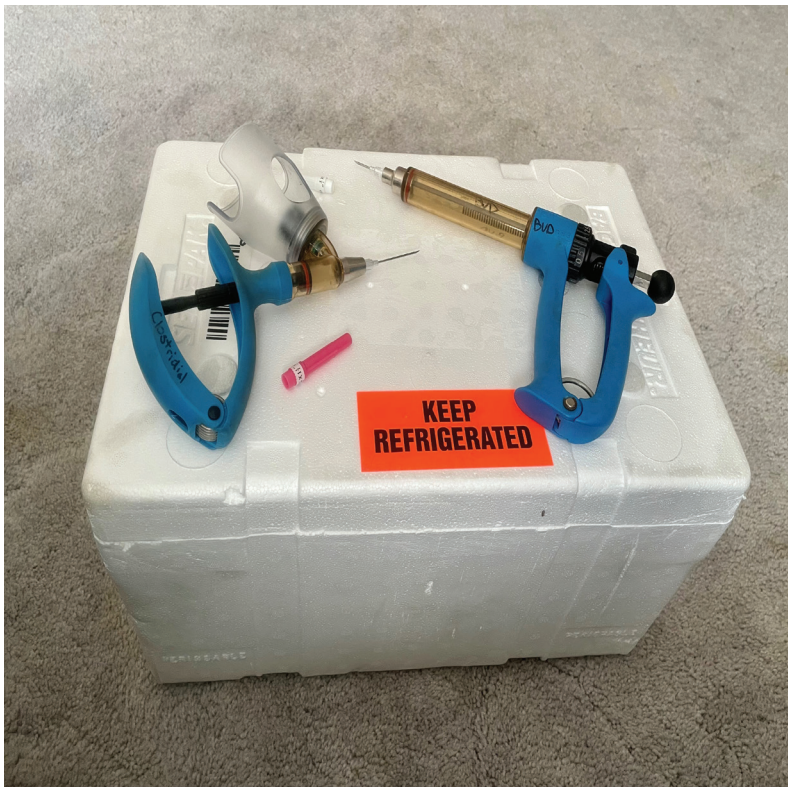
Spring Vaccinations – A Little Work Goes a Long Way to Protect your Assets

Deanne Wilkinson, DVM – Extension Veterinarian

Spring comes with increased daylight, warmer temperatures, green grass, and preparing for the grazing season. As management decisions are modified, it is important that producers assess whether their vaccination program also needs a few adjustments.



Spring vaccines have many purposes, which include increasing antibody levels against pathogens (disease-causing microorganisms) causing abortion to preventing sudden death from common soil contaminants, such as Clostridium chauvoei or blackleg. High reproductive efficiency, especially high conception rates in the first breeding cycle, is essential for beef operations to be economically viable and vaccines can assist with this.

For calves, spring vaccines prime their immune system to the respiratory viruses and bacteria that they may encounter in the summer or fall. This allows for their pre-weaning immunizations in the fall to be booster vaccines, meaning that their immune system has faced the pathogens previously and they will have the ability to mount a stronger immune response in the face of infection. This booster benefit is especially true for the intranasal vaccines, which should be used when vaccinating calves under eight weeks of age, when colostrum can interfere with the efficacy of injectable vaccines.

Vaccination programs should include the core vaccines, as outlined by the Beef Cattle Research Council at https://www.beefresearch.ca/content/uploads/2023/05/Core-Vaccine-List.pdf, but producers should discuss with their veterinarians which other risk-based vaccines may need to be added. Risks, such as herd history or contact with wildlife, may mean that vaccines against other conditions, such as pink eye or leptospirosis, may improve herd health and productivity.

Although spring processing is a large task, it sets the herd up for success during the rest of the year. Producers should also remember that vaccines cannot overcome poor management, so they need to support their vaccine program through proper nutrition and minimizing other risks.

If you would like to be added to our information-sharing list, please email or text Juanita Kopp (Juanita.Kopp@gov.mb.ca, 204-825-4302). Your input or topic ideas are always welcome.

Contact us

- Go to manitoba.ca/agriculture
- Email us at agriculture@gov.mb.ca
- Follow us on X @MBGovAg.
- Visit your local Manitoba Agriculture Service Office